

Remarks/Arguments:

Applicants' disclosure is directed to a vacuum heat insulator. The vacuum heat insulator generally includes a core material and an enveloping member which covers the core material. In an exemplary embodiment disclosed in Applicants' specification, the enveloping member is welded to a fin. The fin is disposed on a low-temperature side of a heat-insulating surface of the vacuum heat insulator.

Claims 15, 17, 22-29 and 32-35 stand rejected under 35 U.S.C. § 103(a) as obvious over Wynne (U.S. Patent No. 5,900,299), Mitsuhiro et al. (JP 2001-141179) and Akinori (JP 2001-265138). Claims 30 and 31 stand rejected under 35 U.S.C. § 103(a) as obvious over Wynne, Mitsuhiro, Akinori and Japanese Patent Document 107427/1990. It is respectfully submitted, however, that the claims are patentable over the art of record for the reasons set forth below.

Wynne, Mitsuhiro and Akinori are directed to vacuum heat insulating devices. Wynne discloses an insulating device that "includes a plurality of polyester or MYLAR layers including an inner layer of heat-sealable polyethylene and an outer materialized or aluminum layer which is formed by laminating a metal foil to the film layer or by metal deposition on the layer." See Wynne at col. 2, lines 63-67. Mitsuhiro and Akinori disclose insulating devices which may be used in the presence of temperatures of 100°C and 200°C, respectively. See Mitsuhiro (Abstract) and Akinori (paragraph 0004).

Applicants' invention, as recited by claim 15, includes a feature which is neither disclosed nor suggested by the art of record, namely:

...an enveloping layer...Including:

...a heat seal layer...

...a protective layer...

...a fin to which the enveloping member is welded...

...wherein a melting point of the heat seal layer is above 100°C and below 200°C, a melting point of the protective layer is at least 200°C, at least the fin is disposed on a low-temperature side of a heat-insulating surface of the vacuum heat insulator, and the vacuum heat insulator blocks thermal effect of the heat source on the member to be protected. (Emphasis added).

This feature is described in the originally filed application at page 12, lines 3-22 and is illustrated in FIG. 5.

The Examiner admits that neither Wayne, nor Mitsuhiro, nor Akinori, discloses the feature of "a melting point of the heat seal layer is above 100°C and below 200°C...at least the fin is disposed on a low-temperature side of a heat-insulating surface of the vacuum heat insulator...." However, the Examiner argues that the recited melting point range for the heat seal layer is obvious "since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice." In addition, the Examiner argues that it would be obvious to place the fin on the low temperature side of the insulator "since this is the logically more heat sensitive point of the envelope." See Official Action at paragraph 6.

Applicants respectfully disagree with the Examiner. In particular, disposing the fin "on a low-temperature side of a heat-insulating surface of the vacuum heat insulator" produces unexpected results. Such unexpected results include that a temperature of the fin may be 80°C in the presence of a 150°C heat source. Thus, the layers do not degrade "even when a conventional economic resin film having a melting point below 200°C [is used] instead of a resin film having a melting point of at least 200°C for heat seal layers." Further, the conductivity of the vacuum heat insulator does not increase significantly after five years of exposure to a temperature of 150°C. See Applicants' specification at page 12, line 23 through page 13, line 4 and page 14, lines 2-5. Such results are neither disclosed nor suggested by Wynne, Mitsuhiro and/or Akinori.

Accordingly, for the reasons set forth above, claim 15 is patentable over the art of record.

Claims 17 and 22, while not identical to claim 15, include features similar to claim 15. Accordingly, claims 17 and 22 are also patentable over the art of record for the reasons set forth above.

Claims 32 and 34 include all features of claim 15 from which they depend. Claims 33 and 35 include all features of claim 17 from which they depend. Claims 23-31 include all features of claim 22 from which they depend. Thus, claims 23-35 are also patentable over the art of record for the reasons set forth above.

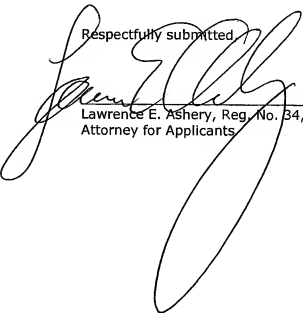
Claim 15 has been amended to provide antecedent basis for the term "heat seal layer." Claim 17 has been amended to delete "a 200°C." Accordingly, Applicants respectfully request withdrawal of the objection to claim 15 and the rejection of claims 17, 33 and 35.

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In view of the amendments and arguments set forth above, the above-identified application is in condition for allowance which action is respectfully requested.

Respectfully submitted,



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